T2 BHAS 1

NASA'S CASSINI SCIENTIST FOR A DAY
CASSINI PEOPLE OUTREACH DEPARTMENT, JPL, NASA
PLANETARY SOCIETY, INDIA (National Point of Contact)



BHASK
Gayatri nagar, VIJAYAWADA

Name : Ch. Bhaskar

Class: X th Standard **Section :** IIT

School : Bhasyam **In charge Teacher :**

Principal/Correspondents Name: K. Hanumantha Rao.

School Phone No : 9848536941

Current Address: Bhashyam public school, Gayathrinagar, Vijayaw

Phone: **Mobile:**

Father's/Guardian Name : Ch. RajaGopala Rao.

Designation: Judge.

Office Address: IIIrd metropolitan Magistrate, V.H.R Complex, Besant Road, Vijayawada, A.P.

Phone: 08662577058. **Mobile :** 9440901067.

Declaration

I/We agree to assign copyright to JPL so that JPL and NASA can post the essays, as excerpts or in their entirety, on NASA Web sites. I/We agree if selected would attend the Videoconference fulfilling necessary requirements as and when stated by the Society.

Thanking you

K1

Students Name : Ch. Bhaskar Father/Guardian's Name: Ch. RajaGopala Rao.

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Signature : Bhaskar. Signature:

Note : Society welcomes Interested Parents/Individuals/Govt/Private organizations to assist society 1. to raise support/sponsorship for various expenses in their Official/Personal capacity. 2. Lend time/expertise for organizing the Videoconference.
Email: planetarysocietyindia@gmail.com

A

Instructions For Teacher In Charge/Parent/Guardian Submitting the Final Essays:

1. This opportunity is open to all students in India who are in grades 5 to 10. Essays will be divided in two groups: grades 5 to 7 and 8 to 10.
2. Communication skills are an important part of being a scientist. Spelling and grammar will be considered, in addition to the ideas expressed in your essay.
3 . **Date of Videoconference** which is planned to be held in december (our request for this date is awaiting approval from Cassini Outreach, JPL, NASA) .
6. **Dress Code** may be suggested Organizers /Special T-Shirt at cost may be printed.
7. The winning Schools will participate videoconference with Cassini scientists (depending on the conferencing technology made available Organizers)
i. Indirect (Winner ask question and Mission Scientist reply in video)
ii. Directly (Involving ex NASA Scientist)
8. The decision of the judges Communicated by National Coordinator is final.
9. **Submission of Essays :** should be delivered to

For Students:

1. Write an essay (500 words maximum) explaining which one of the three possible imaging targets you chose, and explain why.
2. Suggestions: i). Try reading all the Material given. Don't miss to read Set 1 & Set 2 and Science Objectives of your Target.
ii). You can Work/write your essay based on the hidden clues suggested in the Description or Transcripts of Videos or the questions asked in the target to be chosen by you. You can also use Actual Mission Objectives or Science Objectives Info regarding Mimas, Tethys, Prometheus etc.. mostly which is available in Set 3 for some targets.
3. All submissions must be students' original work. Each student can submit only one entry selecting only one Target .

4. Attach Separate page with following information:
i. Target Chosen: With Title and Target No.
ii. Name of the Student & Father Name along with Phone/Mobile No.
iii. Summary in 50 -75 Words.
iv. Name of School with Phone No. – In charge Teacher
The names and contact information, Summary of 50-75 words above will NOT be included in the word count for the 500-word essay.
5. Participants agree to assign copyright to JPL so that JPL and NASA can post the essays, as excerpts or in their entirety, on NASA Web sites.

MAIN CAMPUS
Bhashyam High School
Pinnamaneni Poly Clinic Road
Gayatri Nagar, VIJAYAWADA-8

Ch. Bhaskar.
X th class,
Bhasyam public School,
Vijayawada,
A.P.

"TARGET 2: TETHYS AND ITS RINGS"

"As political polls are becoming critical, increased accuracy is attained by questioning representative samples of the population. Similarly, in Cassini's exploration, a "typical example" should become the image target to further our understanding of Saturn's moon.

Tethys is the best moon to explore because it is simil-ar to Saturn's other moons. Tethys is comparable to Dione and Rhea, and is categorized as a "mid-sized icy" moon of Saturn, along with Mimas, Enceladus, Dione, Rhea and Iapetus. Not only is Tethys similar to other moons, but it also has unique features that merit research.

Tethys travels between Telesto and Calypso, two of Saturn's moons. By exploring Tethys, scientists can observe an uncommon phenomenon - multiple moons "sharing" an orbit. In addition, Tethys has intriguing surface features, such as both "heavily" and "lightly" cratered regions. The variation implies that Tethys has experienced "internal-activity", more recently in locations which are "lightly cratered."

In contrast, Mimas' craters [such as Herschel crater] suggest minimal "internal activity" within Mimas. Regarding Titan, it has been studied in some

detail by the Huygens probe, which was transported by the Cassini Spacecraft. Titan possesses unique characteristics, such as the possible existence of lakes containing liquid methane. Exploring Titan [whose atmosphere has an abundance of nitrogen and complex molecules] would provide information regarding potential conditions for the formation of life. However, some scientists have suggested that unlike Tethys and Mimas, "Titan cannot be a native moon of Saturn." Consequently, Tethys is the best image target to study Saturn's moons because [paradoxically] it is both similar to and different from Saturn's other moons.

Tethys possesses mysteries that could be solved if it becomes Cassini's images target. Relatively recent craters on Tethy's surface have brighter coloration than surrounding areas. Cassini has an onboard spectrometer -- the Cassini Composite infrared spectrometer, or CIRS. The CIRS could be useful to determine the make-up of the surface of the brighter-colored craters. Another remarkable aspect of Tethys is the

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Crater odysseus [which is two-fifths the size of Tethys]. Tethys was probably largely liquid when a collision formed odysseus; the greater elasticity would enable Tethys to survive a colossal impact. This theory of a liquid Tethys explained the presence of Ithaca chasma. Ithaca chasma is a huge canyon-like structure which spans across nearly seventy-five percent of Tethys. As Tethys solidified, its surface cracked due to the increase in volume; consequently, Ithaca chasma appeared.

Thus, Tethys is indeed the best image target out of the three options; The Saturn rings, Tethys, Titan. Tethy's similarity to other moons is a feature that should be taken advantage of perhaps to extrapolate the collected data to other moons. Also, Tethys portrays some unusual characteristics and mysteries that merit more research. Although the accuracy of political polls does have grounds for speculation, many scientific findings are pointing to Tethys as the characteristic satellite which will teach us about the general nature of Saturn's moons.